

"APPROVED FOR RELEASE: 07/12/2001

CIA-RDP86-00513R000929620005-8

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CIA-RDP86-00513R000929620005-8"

**AUTHORS:** Lyulichev, A. N., Levintovich, E. V. 307/131-58-7 7/14

**TITLE:** The Determination of the Volume Weight of Refractories According to the Absorption of Gamma Radiation (Opredeleniye ob'yemnogo vesa ognepornykh izdeliy po pogloshcheniyu gamma-izlucheniya)

**PERIODICAL:** Ognepory, 1958, Nr 7, pp. 319 - 324 (USSR)

**ABSTRACT:** The VNIIO elaborated this method and tested it with refractories of various dimensions as well as within wide ranges of the volume weights of 0.75 to 3.35 g/cm<sup>3</sup>. The volume weight can be determined for products having two parallel surfaces.

1) Apparatus and method of determination: The determination of the volume weight is based on the character of the absorption of gamma radiation passing through a substance. The apparatus has a gamma radiation source as well as a counter, and prior to its use it is calibrated by means of samples of known density. The scheme of such an apparatus is shown in Fig 1. A Geiger-Müller counter (Geyger-Müller counter) of the type AMM-4 as well as a computer of the type PS-64 are

Card 1/4

SOV/131-58-7-7/14

The Determination of the Volume Weight of Refractories According to the Absorption of Gamma Radiation

used.

- 2) The dependence of the accuracy of determination on the energy of the gamma radiation source: In the case of a considerable thickness of the samples to be investigated the error of determination is dependent on the inaccuracy of the calculation in  $I/I_0$ , where  $I_0$  denotes the radiation intensity. After this the calculation is carried out in detail.
- 3) The influence of other factors on the accuracy of determination: Table 1 gives the results of the measurements as dependent on the position of the sample, and in Fig 2 those for refractories of different chemical composition are shown. The experimental values obtained prove the applicability of this method.
- 4) The arrangement of the graphical calibration plan as shown in Fig 3. It was made on the basis of measurements of absorbing samples of different thickness.
- 5) The checking of the method with various objects and the determination of the accuracy of the results.

Card 2/4

Refractories of different dimensions and thickness as well

SOV/131-58-7-7/14

The Determination of the Volume Weight of Refractories According to the Absorption of Gamma Radiation

as in different positions were checked as to their volume weight. The results of these investigations are given in Table 2 and they show that the deviations between the values obtained according to the gamma radiation and those obtained by the hydrostatic method remain within the framework set up by GOST specifications.

Conclusions:

- 1) The possibility of the determination of the volume weight by means of the absorption of gamma radiation for refractories of a volume weight of from 0,75 to 3,35 g/cm<sup>3</sup> and of dimensions of from 65 - 180 mm was found.
- 2) The optimum geometric parameters of the apparatus were determined.
- 3) The method was checked on products of different kinds and it was found that it corresponds to the GOST specifications. There are 3 figures, 2 tables, and 7 references, 6 of which are Soviet.

Card 3/4

SOV/131-58-7-7/14

The Determination of the Volume Weight of Refractories According to the Absorption of Gamma Radiation

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut ogneporov  
(All-Union Scientific Research Institute for Refractories)

1. Ceramic    2. Gamma radiation--Absorption    3. Geiger counters  
--Applications    4. Ceramic material--Microvolumetric

Card 4/4

SHAKHTIN, D.M.; LEVINTOVICH, E.V.

Determination of the specific surface of clays and kaolins  
by means of radioactive tungsten [with summary in English].  
Koll. zhur. 23 no.4:495-498 J1-Ag '61. (MIRA 14:8)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov,  
Khar'kov.  
(Clay) (Adsorption) (Tungsten--Isotopes)

S/081/63/000/002/038/088  
B156/B444

AUTHORS: Shakhtin, D. M., Levintovich, E. V.  
81

TITLE: Radioactive isotopes used for testing the grinding of  
magnesite refractory substances

PERIODICAL: Referativnyy zhurnal: Khimiya, no. 2, 1963, 370, abstract  
2M25 (Sb. naukovykh tr. Ukr. n.-i. in-t ogneporov, no. 5 (52),  
1961, 336-341)

TEXT: The basis of this method of testing is the determination of the  
amount of radioactive substance adsorbed by the surfaces of grains of  
ground magnesite; the testing process consists of the following stages:  
determination of the specific surface area by adsorptive capacity, i.e.  
by the number of mg of the radioactive substance adsorbed by 1 g of  
substance; this is found from the difference between the radioactivity of  
solutions before and after adsorption. The specific surface area of burnt  
magnesite was determined using an alcohol solution of  $\text{CaCl}_2$  and a water-  
alcohol solution of sodium tungstate, labeled with the radioactive isotope

Card 1/2

Radioactive isotopes used for ---

S/081/63/000/002/030/C00

B456/B144

Ca<sup>45</sup> and W<sup>185</sup>. The grain size category to which the magnesite was ground was determined by screening, and by determining grain size under the microscope. A procedure is given for determining the adsorptive power and radioactivity of solutions. The results show that there is a relationship between the adsorptive power and grain size values, and this is used for testing the grinding. [Abstracter's note: Complete translation.]

Card 2/2



**SHAKHTIN, D.M.; LEVINTOVICH, E.V.**

Use of radioactive isotopes to control the grinding of magnesite  
refractories. Sbor.nauch.trud. UNIIO no.5:336-341 '61. (MIRA 15:12)  
(Magnesite) (Radiosiotopes—Industrial applications)

LEVINTOVICH, E.V., SHAKHTIN, D.M.; KULIK, A.I.; LOGACHEV, M.S.;  
MIROSHNICHENKO, V.Ya.; SLAVGORODSKAYA, Ye.Ya.

Determining the weight by volume and density variations of a  
glass bar by the absorption of gamma rays. Cgneupory 28 no.1:  
17-21 '63. (MIRA 16:1)

1. (Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov (for  
Levintovich, Shakhtin). 2. Chasov-Yarskiy kombinat ogneupornykh  
izdeliy (for Kulik, Logachev, Miroshnichenko, Slavgorodskaya).  
(Refractory materials--Testing)  
(Gamma rays--Industrial applications)

LEVINTOVICH, E.V.; SHAKHTIN, D.M.; MALIKOVA, T.V.; RUTMAN, D.S.

Determining the apparent porosity of refractories by their volumetric weight. Ogneupory 29 no.1:21-24 '64. (MIRA 17:3)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov (for Levintovich, Shakhtin). 2. Podol'skiy zavod ogneupornykh izdeliy (for Malikova, Rutman).

SHAKHTIN, D.M.; LEVINSON, E.V.; PRASKO, V.S.; ALEKHIN, A.I.;  
IFERNER, A.I. KULIK, A.I.; ZHELTOBRYUKH, V.P.; VASHCHENKO, V.P.

Apparatus for determining the density of a glass bar from the  
absorption of gamma radiation. Zav.lab. 30 no.4:501-502 '64.  
(MIRA 17:4)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov i  
Chesov-Yarskiy kombinat ogneupornykh izdeliy.

ACCESSION NR: AP4033622.

8/0032/64/030/004/0501/0502

AUTHORS: Shakhtin, D. M.; Levintovich, E. V.; Prasko, V. S.; Alekhin, A. I.;  
Lerner, A. I.; Kulik, A. I.; Zheltobryukh, V. P.; Vashchenko, V. P.

TITLE: Apparatus for determining the density of glass beams by gamma ray absorption

SOURCE: Zavodskaya laboratoriya, v. 30, no. 4, 1964, 501-502

TOPIC TAGS: measuring apparatus, glass property, density measurement, gamma ray  
absorption

ABSTRACT: Apparatus is described for the nondestructive measurement of the density  
of glass beams by measuring the attenuation of gamma rays passing through the  
material. The source of gamma rays is  $\text{Co}^{60}$  with an activity of 20 mg-equiv of  
radium shielded by 20 cm of lead. The detector is a scintillation counter with a  
40 x 40 mm NaI crystal. The density of products 250-350 mm thick can be determined  
within 0.01 gm/cm<sup>3</sup> in 3-4 minutes. Orig. art. has: 1 diagram.

ASSOCIATION: Ukrainskiy nauchno-issledovatel'skiy institut ogneporov i Chasov-  
Yarskiy kombinat ognepornykh izdeliy (Ukrainian Scientific Research Institute of  
Refractory Materials and Chasov-Yarskiy Combine of Refractory Products)

SUBMITTED: 00

DATE ACQ: 28Apr64

ENCL: 00

SUB CODE: MT

NO REF SOV: 000

OTHER: 000

Card 1/1

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CIA-RDP86-00513R000929620005-8"



LEVINZ, R.Ya.; SHANAZAROV, K.S.; TRESHCHOVA, Ye.G.

Synthesis of 1,1,2-trimethyl-4-alkylcyclopentanes. *Neftekhimiya*  
3 no.1:3-9 Ja-F '63. (MIRA 16:2)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.  
(Cyclopentane)

LEVINZA, S.

May 1947

USSR/Chemistry - Hydrogen  
Chemistry - Overvoltage

"The Overvoltage of Hydrogen on Nickel in Alkali Solutions," P. Lukovtsev, S. Levinza, 12 pp

"Zhur Fiz Khim" Vol XXI, No 5

Describes, with graphs and figures, the experiments conducted, which showed that in a relatively strong solution of NaOH the overvoltage depends on the equation  $\eta = a + b \lg i$  and depends greatly on the concentration of the solution; therefore, the form and state of the cathode has little effect on experimental results. Published 31 Oct 1946. Physical-Chemical Institute, Imeni L. Ya. Karpov, Moscow.

PA 15795

DOBROVINSKIY, R.N.; KOZLOV, I.A.; LEVINSON, A.I."

Carrying of dysentery bacteria by healthy persons. Zhur.mikrobiol.  
no.3:29-31 Mr '55. (MLRA 8:7)  
(DYSENTERY, BACILLARY, transmission,  
carriage without clin. manifest.)

VASYUKOV, V.I., inshener; LEVINZON, A.L., inshener.

Shortcomings in the construction of certain building machines.  
Mekh.stroi. 13 no.10:24-25 0 '56. (MLRA 9:11)  
(Building machinery)

AUTHOR: Levinzon, A. D., Engineer

100-57-12-6/11

TITLE: The Supply of Spare Parts for Building Machines.  
(Uporyadochit' obespecheniye stroitel'nykh mashin  
zapasnymi chastyami). (Experience Gained from the Con-  
struction of the Ulan-Bator to Dzamyn-Ude Railway).  
(Iz opyta stroitel'stva zheleznoy dorogi Ulan-Bator -  
Dzamyn-Ude).

PERIODICAL: Mekhanizatsiya Stroitel'stva, Nr.12, 1957, pp.22-24. (USSR)

ABSTRACT: During the building of the above-mentioned railway (1953 -  
1958) the supply of spare parts was organized in accord-  
ance with the norms of the Directorate of Railroad Construc-  
tion of the Ministry of Transport (GUZhDS MPS) (Glavnoye  
upravleniye zheleznodorozhnogo stroitel'stva Ministerstva  
putey soobshcheniya (GUZhDS MPS). In this article the  
author analyses the norms for spare parts for building  
machines. Table 1 shows the costs for excavator E-505.  
Table 2 gives a summary of various details of excavator  
E-505 for which the norms of spare parts could be reduced.  
Table 3 shows similar details for excavator E-505 for  
which higher norms for spare parts should be fixed. Table  
4 compares the cost of various norms for spare parts for  
excavator E-505. Table 5 gives details of norms for use

Card 1/2

100-57-12-6/11

The Supply of Spare Parts for Building Machines. (Experience  
Gained from the Construction of the Ulan-Bator to Dzamyn-Ude Railway)

of spare parts for the S-90 tractor and its engine KDM-46 which is the basic unit used in many engineering works. The table compares the norms laid down by GUZhDS MPS and other organisations with the actual expenditure for spare parts on the ULAN-BATOR to DZAMYN-UDE railway project. Table 6 gives a list of details of the KDM-46 engine for which spare part norms could be reduced. Table 7 gives similar information for the S-90 tractor and Table 8 shows parts of the KDM-46 engine for which spare part norms could be raised. There are 8 Tables.

AVAILABLE: Library of Congress.

1. Spare parts-Supply system
2. Machine-Construction
3. Cranes

Card 2/2

LEVINSON, A.L.

Polymorphism in acetylenic gamma glycols. Sbor. st. LITMO no.24:  
109-111 '57. (MIRA 11:5)

(Glycols) (Polymorphism)

LEVINSON, A.L.

Catalytic hydration of acetylenic gamma glycols in the presence of  
colloidal palladium. Sbor. st. LITMO no.24:112-126 '57.  
(Glycols) (Hydration) (Palladium) (MIRA 11:5)



DEVINZON, A.L., inzh.; TRAKTOVENKO, Ya.I., inzh.

Plane cutting of concrete. Prom. stroi. 40 no.8:52-54 Ag '63.  
(MIRA 16:8)

1. Nauchno-issledovatel'skiy institut organizatsii, mekhanizatsii  
i tekhnicheskoy pomoshchi stroitel'stvu Akademii stroitel'stva i  
arkhitektury SSSR.

(Reinforced concrete)

LEVINSON, A.L., insh.; KOSOLAPOV, V.G., insh.

The new S-870 pile driver unit. Stroil. i dor. mash. 10 no.10:1-2  
0 '65. (MIRA 18:10)

26872

5.1310 1160 1273 1087

S/081/61/000/013/005/028  
B105/B201

**AUTHORS:** Koshurnikov G. S., Ivanova A. P., Levinson A. L.

**TITLE:** Electrocrystallisation of metals in the presence of organic and inorganic substances. Communication I

**PERIODICAL:** Referativnyy zhurnal. Khimiya, no. 13, 1961, 86, abstract 136652. (Sb. nauchn. tr. kafedr matem. grafiki, khimii i teor. mekhan. Leningr. in-t tochnoy mekhan. i optiki, 1960, vyp. 31, 110-119)

**TEXT:** The authors studied the effect of organic and inorganic admixtures to electrolytes on the electrical resistance (ER) of metallic coats. ER of Cu coats, obtained from  $\text{CuSO}_4$  solutions, is first lowered with increasing current density  $i$ , and then rises again, deposits of dendritic structure being formed. If  $\text{HNO}_3$  and  $\text{H}_2\text{SO}_4$  are added to the  $\text{CuSO}_4$  solution, the ER minimum disappears, and the dendritic form is not formed. An addition of  $\text{H}_3\text{BO}_3$  shifts the ER minimum toward greater  $i$ , while an

Card 1/2

26572

S/081/61/000/013/005/028

B105/B201

Electrocrystallization of metals in ...

addition of  $\text{Na}_2\text{SO}_4$ ,  $\text{MgSO}_4$ , and  $\text{Al}_2(\text{SO}_4)_3$  shift it to smaller i. The increase of the minimum of ER, which depends on the nature of the cation was explained by the inclusion of the hydroxides into the interstices of the crystals. An addition of benzoic acid and aniline increase ER considerably, while an addition of phenol and sugar is almost ineffective. [Abstracter's note: Complete translation.]

Card 2/2

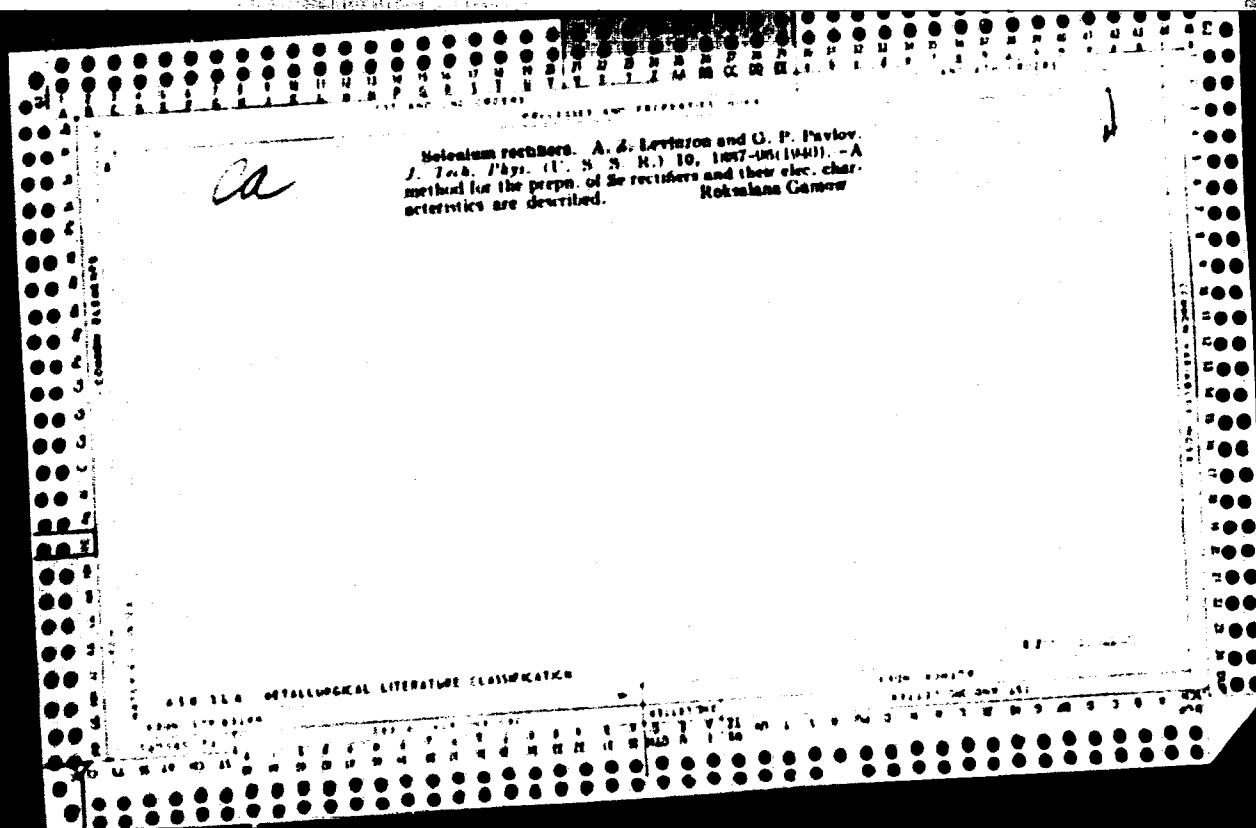
KRUGER, M.Ya., inzh.; PANOV, V.A., kand. tekhn. nauk; KULAGIN, V.V.,  
kand. tekhn. nauk; POGAREV, G.V., kand. tekhn. nauk; KRUGER,  
Ya.M., inzh.; LEVINZON, A.M., inzh.; Priniral uchastiye  
KALINKEVICH, V.N., inzh.; KAZANSKIY, A.V., kand. tekhn. nauk,  
retsensent; DMITRIYEV, A.A., inzh.; SIMONOVSKIY, N.Z., red.  
izd-va; MITARCHUK, G.A., red.izd-va; SHCHETININA, L.V., tekhn.  
red.

[Handbook for the designer of optical instruments] Spravochnik konstruktora optiko-mekhanicheskikh priborov. [By] M.IA.  
Kruger i dr. Moskva, Mashgiz, 1963. 803 p. (MIRA 16:12)  
(Optical instruments)

LEVINZON A. Z.

Cuprous oxide plates for high-power cuprous oxide rectifiers. A. Z. Levinzon and Yu. A. Dunayev, *J. Tech. Phys. (U. S. S. R.)* 8, 1212-18(1958). The manuf. of large Cu<sub>2</sub>O-coated Cu plates of approx. 1 sq. m. area is described. The washed Cu plates are kept at 990-1000° for 12-20 min., then at 600° for 9-17 min. and then quenched in cold H<sub>2</sub>O. The CuO formed is removed by 30% HNO<sub>3</sub> and brush. The breakdown potential of the coat is 75 v. The edges of the plates are lacquered, and the plates are coated with graphite and shellac in alc. soln. After 24 hrs. drying at 50°, Zn is sprayed on. Several plates spaced 1.5 cm. from each other form a rectifier; no radiator plates for carrying away the heat are necessary.

J. J. Bikerman







LEVINSON, A.Z.

GORELIK, B.V., dotsent, kandidat tekhnicheskikh nauk; LEVINSON, A.Z., dotsent, kandidat tekhnicheskikh nauk [deceased]; YUDOVINA, S.A., assistant.

Electric and optical hygrometer. Elektrichestvo no.1:80-82 Ja '49.  
(Hygrometry) (MLRA 7:10)

LEVINSON, Bella Davidovna; DUBALAZOV, Viktor Andreyevich;  
KRAINSKIY, A.I., Fed.

[Practice of the Kirov Plant in machine accounting for  
consolidated material and labor norms] Opyt Kirovskogo  
zavoda po mekhanizirovannomu raschetu svodnykh material'-  
nykh i rudovykh normativov. Leningrad, 1964.  
(MIRA 18:2)

MEYER, L.A.; LEVINSON, D.I.

Using the four-soude method in measuring the resistivity of  
nonhomogeneous semiconductor materials. Izv. tekhn. no.5:  
29-31 My '65. (MIRA 18:8)

IGLITSIN, M.I.; MEYER, A.A.; KARAGIOZ, O.V.; LEVINZON, D.I.; IVANOV, A.V.

One-probe method for measuring the specific resistance of semiconductors carrying a-c current. Zav. lab. 31 no.9:1092-1094 '65.  
(MIRA 18:10)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskoj promyshlennosti.

L 3575-66 EWT(1)/EWT(m)/EMP(w)/I/EMP(t)/EMP(b)/EWA(h)/EWA(c) IJP(c) ID/AT  
 ACCESSION NR: AP5024814 OR/0032/65/031/010/1207/1209  
 620.179.1

AUTHOR: Baranskiy, P. I.; Levinzon, D. I.; Shapoval, V. Ya.

TITLE: Use of the four-probe method for measuring the resistivity of heavily doped germanium

SOURCE: Zavodskaya laboratoriya, v. 31, no. 10, 1965, 1207-1209

TOPIC TAGS: germanium single crystal, resistivity, germanium semiconductor

ABSTRACT: While the four-probe method has been ineffective for measuring resistivity in heavily doped germanium, this approach has several advantages for this type of measurement. The purpose of this paper is to study the nature of the obstacles which prohibit the use of this method in the case of heavily doped germanium, and to suggest measures for modernizing the method. Germanium single crystals doped with As, Ga and Sb were studied. The resistivity of the germanium with Ga and Sb was  $\sim 3-4 \cdot 10^{-3}$ , and with As  $5-9 \cdot 10^{-4}$   $\Omega \cdot \text{cm}$ . The two-probe method showed a variation of less than 0.5-1% in resistivity for a length of 1-2 cm. Tungsten and phosphor bronze probes were used. Interprobe distances were from 0.70 to 1.30 mm. It is

Card 1/2

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ACCESSION NR: AP5024814

found that the spurious phenomena which limit the applicability of the four-probe method in the case of heavily doped germanium are thermoelectric effects caused by temperature gradients which are the result of gradients in the current density and the physical inadequacy of the contacts. It is recommended that the electrical forming method be used for making the contacts. Contact formation with a 500-600 ma current of 1-2 seconds gave probes which yielded values of  $\rho$  within 7% of control data for the two-probe method. , Orig. art. has: 3 figures, 4 formulas.

ASSOCIATION: Institut poluprovodnikov Akademii nauk UkrSSR (Institute of Semiconductors, Academy of Sciences, UkrSSR)

SUBMITTED: 00

ENCL: 00

SUB CODE: SS, NP

NO REF SOV: 001

OTHER: 001

Card 2/2



USSR/Medicine - Typhoid

FD-542

Card 1/1      Pub.148 - 5/23

Author : Shapiro, S. Ye. and Levinzon, E. N.

Title : The clinical characteristics of typhoid fever when treated by synthomycin

Periodical : Zhur. mikrobiol. epid. i immun. 6, 16-22, Jun 54

Abstract : A detailed discussion of the changes produced in the pathognomonics of the clinical course of typhoid by synthomycin therapy is presented. These changes include a characteristic temperature lowering, suppression of intoxication phenomena, and prevention of complications and emaciation. In many cases, however, the remissions are only temporary and relapses occur. On the basis of these investigations, the authors conclude that synthomycin has only an ameliorating effect on the course of typhoid, and, although it reinforces the immunological reactions of the macro-organism, has no immediate bacteriostatic action. The results are presented in five graphs and a chart. No references are cited.

Institution : Stalinabad City Infectious Disease Hospital (Chief Physician M.S. Chitakhova)

Submitted : August 19, 1953



LEVINZON, E. N. and SHAPIRO, S. Ye.

"The Treatment of Infectious Diseases," a review, Zhur. Mikrobiol., Epidemiol.  
i Immunobiol., No.1, pp 114-116, 1955

Book edited by Cor. Mdr. AMN SSSR, Prof. G. P. Rudnev.

LEVINSON, E. N., SHAPIRO, S. Ye.

Epidemiological and Clinical Peculiarities of the Central-Asiatic Variety  
of Hemorrhagic Fever.

VOYENNO-MEDITSINSKIY ZHURNAL (MILITARY MEDICAL JOURNAL), No 3, 1955. p. 55

ANTIBIOTICS

"On the Clinical Course of Typhoid Fever Relapses in Children Treated with Synthomycin\*," by E.M. Levinzon, /Stalinabad/ City Infectious Clinical Hospital (Chief Physician - P.Ya. Kuznetsov), Zdravookhraneniye Tadzhikistana, No 3, May-June 1957, pp 3-8.

Levinzon reports that the occurrence of relapses in typhoid fever treated with Synthomycin and Levomycetin has increased considerably. He himself has observed relapses in 30.7% of the patients having typhoid fever.

The course of the relapses observed are described in detail; five are presented and the following conclusions are drawn:

1. The increase in the rate of typhoid fever relapses in children treated with antibiotics is to be interpreted as an increase in the number of mild relapses and the appearance of "very mild" ones.

\* [In its chemical structure, Synthomycin does not differ from Levomycetin. Levomycetin is a levorotatory form and Synthomycin a racemic form. Levomycetin is the Russian name for Chloromycetin (Parke, Davis), Chloramphenicol, U.S.P.]

2. The lowest rate of relapses occurs when antibiotics are administered in a non-continuous cycle.
3. Relapses occur more frequently in children in whom the end of the first wave of the disease was characterized by uncertainty (amphibolia).
4. In most of the relapsing children, a drop in the titer of the Widal reaction could be observed at the beginning of the relapse.
5. Relapses were usually accompanied by an atypical fever.
6. Aneosinophilia and eosinopenia were observed only in severe and moderately severe relapses.
7. The increased occurrence of mild and "very mild" relapses results in a decrease in the rate of positive hemocultures during a relapse.

LEVINSON, E. N., Cand Med Sci -- (diss) "Materials on the study of the clinical picture and sulfobacteriological data in typhoid in children treated with sintomycin." Stalinabad, 1960. 15 pp; (Stalinabad State Medical Inst im Abuali Ibn-Sino); 250 copies; price not given; (KL, 24-60, 135)

DAVIDOV, Sergey L'vovich; ZHEREBTSOV, Ivan Petrovich;  
LEVINZON-ALEKSANDROV, Fedor L'vovich; VLADIMIROV, V.T.,  
red.; SOKOLOVA, G.F., tekhn. red.

[Radio engineering] Radiotekhnika; uchebnoe posobie dlia  
serzhantov voisk svyazi. [By] S.L. Davydov, I.P. Zherebtsov,  
F.L. Levinson-Aleksandrov. 1<sup>zd.</sup> 3., perer. i dop. Moskva,  
Voenizdat, 1963. 342 p. (MIRA 16:3)  
(Radio, Military)

ACCESSION NR: AP4013306

S/0032/64/030/002/0197/0201

AUTHORS: Iglitsyn, M. I.; Levinson, D. I.; Chernopisskiy, V. U.

TITLE: Uniformity control in germanium single crystals using the single probe method

SOURCE: Zavodskaya laboratoriya, v. 30, no. 2, 1964, 197-201

TOPIC TAGS: resistivity, germanium crystal, electrical contact, differentiating RC-circuit, semiconductor

ABSTRACT: The method and experimental details for automatically recording the resistivity distribution over a bar of germanium crystal have been described. The method consists of measuring the potential drop  $V(x)$  between a probe, moving over the crystal surface  $x$ , and an electrical contact in a differentiating RC-circuit. The resistivity is determined from the expression

$$V = RC \cdot v \frac{I}{s} \rho(x),$$

where  $v$  - probe speed,  $s$  - crystal area,  $I$  - current. The speed  $v$  is varied

Card 1/2

ACCESSION NR: AP4013306

within  $(2-3) \times 10^{-3}$  cm/sec,  $R = 3$  kohm,  $C = 102 \mu f$ , registering resistivities  $\rho(x)$  of the order 0.1 to 50 ohm. cm. The analysis is based on the assumption of negligible intermediate resistance between probe (pen) and semiconductor. Some of the components in the circuit include: a potentiometer EPP-09 type 4, amplifier N-373-1 and ferroresonance stabilizer type S-0.5. The results show a uniform statistical fluctuation in  $\rho(x)$  along a mean value. Orig. art. has: 3 figures and 1 table.

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskey promyshlennosti (State Scientific Research and Project Institute of the Rare Metal Industries)

SUBMITTED: 00

DATE ACQ: 26Feb64

ENCL: 00

SUB CODE: PH

NO REF SOV: 002

OTHER: 003

Card 2/2

AUTHOR: Levinzen, G. (Leningrad) 107-58-7-35/43

TITLE: More About the Switching for the "DAG-1" (Yeshché c perek-lyuchenii "DAG-1")

PERIODICAL: Radio, 1958, Nr 7, p 56 (USSR)

ABSTRACT: The author describes his method of using a two-pole three-way switch for switching in the various windings of the "DAG-1" electric motor of a tape-recorder and thereby selecting the various tape-winding speeds. There are 3 circuit diagrams.

1. Switches--Applications    2. Magnetic recording systems--Controls

Card 1/1



LEVINSON, G. I.

(Cant. Med. Sci.)

"Osteomyelitis of the Spine." Sub 16 Jun 47, Second Moscow State  
Medical Inst imeni I. V. Stalin

Dissertations presented for degrees in science and engineering in Moscow  
in 1947

SO: Sum No. 457. 18 Apr 55

188200

3/137/61/000/005/059/060  
A006/A106

AUTHORS: Koshurnikov, G. S.; Ivanova, A. P., and Levinzon, G. S.

TITLE: Electrocrystallization of metals in the presence of organic and inorganic substances. Information I.

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 5, 1961, 65, abstract 51496 ("Sb. nauchn. tr. kafedr. matem., graphiki, khimii i teor. mekhan. Leningr. in-t tochnoy mekhan. i optiki", 1960, no. 31, 110-119)

TEXT: An investigation was made of the longitudinal resistance of Cd-coatings obtained by electrocrystallization on a Pt-electrode-wire from solutions of Cd salts, containing admistures of organic and inorganic salts. There are 9 references.

Ye. L.

[Abstracter's note: Complete translation]

Card 1/1

LEVINSON, Kh., referent

Change in the properties of low-carbon steel after temper rolling  
Stal' 15 no.5:476-479 Hy '55. (MIRA 8:6)  
(Steel--Analyses)

LEVINSON, Kh., referent.

Production of high purity iron (From: "Stahl und Eisen" no.23,1953,  
"Stal" no.10,1954 and "Journal of Metals" no.3,1955).Stal' 15 no.11:  
1049-1050 N '55. (MLHA 9:1)

(Iron--Electrometallurgy)

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**APPROVED FOR RELEASE: 07/12/2001**

**CIA-RDP86-00513R000929620005-8"**

LEVINZON, Kh., referent.

Killed Bessemer steel for drive pipes (From "Stahl and Eisen"  
no.11, 1955). Stal' 16 na.2:185-186 p '56. (MLRA 9:5)  
(Steel--Testing)

PRIDANTSEV, M.V., doktor tekhnicheskikh nauk; LEVINZON, Kh.Sh., inzhener.

Effect of heat treatment on the properties of rimmed, low-carbon  
steels. Stal' 16 no.11:1006-1115 N '56. (MIRA 10:1)  
(Steel--Heat treatment)

<sup>Sh.</sup>  
LEVINSON, Kh. referent.

Investigating the effect of boron on properties of manganese steel  
(from "Journal of Iron and Steel Institute" no.182 '56). Stal' 16  
no.11:1051-1053 N '56. (MLRA 10'1)  
(Manganese steel--Testing) (Boron)



LEVINSON, Kh., referent.

Production of steels for deep drawing in foreign countries (From  
foreign periodicals). Stal' 16 no.4:369-372 Ap '56. (MLBA 9:7)  
(Deep drawing (Metalwork)) (Steel)

LEVINSON, Kh.

133-6-28/33

AUTHOR: Levinzon, Kh.

TITLE: The influence of continuous annealing on the quality of low carbon steel. (Vliyaniye nepreryvnogo otzhiga na kachestvo malouglerodistoy stali).

PERIODICAL: "Stal'" (Steel), 1957, No.6, pp.565-566 (USSR).

ABSTRACT: Abstracted from "Blast Furnace and Steel Plant", 1956, v.44, No.9, pp.1043-47, No.10, pp.1175-78.

AVAILABLE: Library of Congress

Card 1/1

AUTHOR: Levinzon, Kh.

133-8-21/28

TITLE: The influence of carbon, manganese, silicon and aluminium on the displacement of the threshold of cold brittleness of steels. (Vliyaniye ugleroda, margantsa, kremniya i alyuminiya na smeshcheniye poroga khladnolomkosti staley).

PERIODICAL: "Stal'" (Steel), No.8, 1957, pp.747-748 (USSR).

ABSTRACT: This is a review of papers published in the "Journal of Metals", 1954, v.6, No.5, Section 2, pp.645-52 and 1956, v.8, No.10, Section 2, pp.1261-76.

There are 4 references, 1 of which is Slavic.

AVAILABLE: Library of Congress

Card 1/1

LEVINSON, Kh.Sh.

Aging and plasticity of ductile steel (from foreign journals).  
Stal' 17 no.3:285-286 Mr '57. (MIRA 10:4)  
(Steel--Testing)

LEVINSON, Kh., referent.

Effect of continuous annealing on the quality of low-carbon  
steel (from "Blast Furnace and Steel Plant" no.9, no.10, 1956).  
Stal' 17 no.6:565-566 Je '57. (MLRA 10:7)  
(Canada--Steel--Heat treatment)

LEVINSON, Ph., referent.

Effect of carbon, manganese, silicon and aluminum on shifting the transition temperature of cold brittleness in steel (from foreign journals). Stal' 17 no.8:747-748 Ag '57. (MLRA 10:9)  
(Steel--Brittleness) (Steel--Metallurgy)

LEVINZON, Rn., referent.

New horizontal continuous annealing furnace for coiled steel strip;  
a report. Stal' 17 no. 12:1119-1120 D '57. (MIRA 11:1)  
(Furnaces, Heat-treating)

LEVINZON, KH. Sh.

AUTHORS: Levinzon, Kh. and Litvinenko, D. 133-58-3-21/29  
TITLE: The Production and Properties of Boron-containing Non-aging Steel (Proizvodstvo i svoystva borsoderzhashchey nestareyushchey stali)  
PERIODICAL: Stal', 1958, Nr 3, pp 249-252 (USSR)  
ABSTRACT: This is a survey of Western literature on the subject. There are 5 Tables and 9 references, 4 Soviet and 5 English.  
AVAILABLE: Library of Congress  
Card 1/1



AUTHOR: Levinzon, Kh. 133-58-4-24/40  
TITLE: Equipment for Continuous Thermal Treatment of Casing  
Tubes and Plates (Ustanovki dlya nepreryvnoy  
termicheskoy obrabotki buril'nykh trub i tolstykh  
listov)

PERIODICAL: Stal', 1958, Nr 4, pp 352-353 (USSR)

ABSTRACT: This is a review of Western literature on the subject.

1. Tubes--Heat treatment
2. Plates--Heat treatment

Card 1/1

133-58-5-22/81

AUTHORS: Pridantsev, M. V., Doctor of Technical Science, Professor;  
Bat', A.A. Engineer, Gladshteyn, L. I., Engineer, and  
Levinzon, Kh. Sh.

TITLE: Heat-Treated steel, St. 3kp. brand, for Building Structures  
(Termicheski obrabotannaya stal' marki St.3kp dlya  
stroitel'nykh konstruksiy)

PERIODICAL: Stal', 1958, Nr 5, pp 449-456 (USSR)

ABSTRACT: About 80% of steel used in the building industry consists  
of low carbon rimming steel St.3kp delivered in a hot  
rolled state with comparatively low mechanical  
properties. Therefore, some improvement of this steel  
by a heat treatment on the works is of particular  
importance. In the paper an investigation of the  
properties of the steel heat treated under works  
conditions (Nizhniy Tagil Combine) representative of  
the normal works' output is described. Steel plates  
1500 x 6000 mm, 12, 20 and 40 mm thick from two heats  
representative of the low and upper limits of carbon  
content were taken for the investigation (GOST-380-50).  
The composition in %:

|          | C    | Mn   | Si     | Cr  | Ni  | Cu   | P    | S    |
|----------|------|------|--------|-----|-----|------|------|------|
|          | 0.14 | 0.47 | traces | .03 | .03 | 0.24 | .025 | .044 |
| Card 1/5 | 0.19 | 0.54 | traces | .02 | .04 | 0.25 | .017 | .033 |

133-58-5-22/31

Heat-Treated Steel, St. 3p brand for Building Structures

Two modifications of heat treatment were tested: hardening without annealing (heating to  $930^{\circ}\text{C}$ , soaking for 20 to 45 minutes, depending on the plate thickness, cooling in running water for 3 to 6 minutes, depending on the plate thickness, before dipping into water, the temperature of the plates usually fell to  $840$  to  $880^{\circ}\text{C}$ ) and hardening with annealing (at  $580$  to  $600^{\circ}\text{C}$  for eight hours). Mechanical properties, tendency to mechanical ageing and weldability of the specimens cut from heat treated plates were investigated. Table 1 - mechanical properties of steel specimens cut from edges of plates as hot rolled (GK), hardened (Z) and hardened and annealed (Z + O); Table 2 - chemical composition and mechanical properties of heat treated steel specimens cut out some distance from the plate edges. Fig. 1, the dependence of the impact strength on the test temperature; Fig. 2 - the microstructure of hardened steel. A low tendency of thermally treated carbon rimming steel to ageing is due to its low temperature of brittleness in the initial state. In order to check this view as well as to determine the impact strength at various temperatures before and after ageing depending

Card 2/5

133-58-5-22/31

Heat-Treated Steel, St. 3kp brand, for Building Structures

on the conditions of thermal treatment a number of experiments were carried out with 12 mm thick plates. Specimens 260 to 80 mm were heated to  $930^{\circ}\text{C}$ , soaked at this temperature for 30 minutes and then cooled with four various velocities (Fig.3). The microstructure of steel after all four types of thermal treatment is shown in Fig.4. The ageing action on steel after various thermal treatments was evaluated not only by changes in the impact strength at a few temperatures ( $+20$  to  $-20^{\circ}\text{C}$ ) but also by the direct value of the shift of the critical temperature interval of brittleness. The dependence of the impact strength on the test temperature for the three cooling velocities A - with furnace, B in air and V in oil with the indication of the nature of fracture are given in Fig.5, and the dependence of the temperature range of brittleness on the mean linear size of grain in Fig.6. In investigations of the weldability of St.3kp steel hardened, in order to decrease its tendency to brittle destruction and to increase its strength, special attention was paid to retaining these properties. The influence of welding on the first property was evaluated from the impact

Card 3/5

133-58-5-22/31

Heat-Treated Steel, St. 3kp brand for Building Structures

strength of the welded zone and on the second property - from tensile tests. The dependence of the impact strength in the zone of welding on the consumption of power per unit of length of welds is shown in Fig.8 and on the test temperature - Fig.10. The results of tests of welded joints welded manually and automatically are given in Table 3. The preparation of edges for welding is shown in Fig.9. Conclusions: Thermal treatment (hardening without annealing) of low carbon steel St.3kp for structural purposes is advantageous as the metal obtains increased strength and lowered tendency to brittle fracture in comparison with the hot rolled steel of the same type. Plates of 12 to 40 mm thick hardened without annealing possess the yield strength not less than 30 kg/mm<sup>2</sup>, the impact strength after mechanical ageing 4 to 6 kg cm<sup>2</sup> and the threshold of brittleness not above -60°C. The beneficial influence of thermal treatment is a decrease in the size of ferrite grains during hardening. The mechanical properties of welded joints remain near to those of the metal itself.

Card 4/5 Welding can be carried out under the same conditions as

133-58-5-22/31

Heat-Treated Steel, St. 3kp brand for Building Structures

for hot rolled steel. A more complete utilisation of the increased strength of hardened carbon steel would be possible on development of special electrodes and electrode wire. During the production of hardened steel the upper limit of its carbon content should be limited. The steel investigated can be recommended for welded structures. The following participated in the work: from Nizhniy Tagil Combine: Ye. Z. Freydenzon, L. A. Natutskaya, N. A. Chinikova, A. I. Arshinov, A. Ye. Berkeer, I. A. Burdina and from TsNIICHm: I. M. Vyshvaynyuk and Yu. I. Lebedev. There are 3 tables, 10 figures and 5 references, all of which are Soviet.

ASSOCIATIONS: TsNIICHm and GPI Proyektstal'konstruktsiya

Card 5/5

LEVINSON, Kh., referent

Effect of conditions of dressing on the yield limit in steel  
(from foreign journals). Stal' 18 no.8:745 Ag '58. (MIRA 11:8)  
(Steel ingots--Testing)

LEVINZON, Kh.Sh., referent

Effect of aluminum nitride on grain size in steel (from foreign  
publications). Stal' 18 no.11:1036-1037 N '58. (MIRA 11:11)  
(Steel--Metallograhy) (Aluminum nitride)



~~LEVINSON, Kh.Sh.~~  
PRIDANTSEV, M.V., prof.; BAT', A.A., inzh.; GLADSHTEYN, L.I., inzh.;  
LEVINSON, Kh.Sh., inzh.

The ST, Zkp chilled steel as a new prospective material for steel structures. Stroi. prom. 36 no.2:38-39 P '58. (MIRA 11:2)

1. Gosudarstvennyy proyektnyy institut Proyektstal'konstruktsiya i Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii.  
(Steel, Structural)

LEVINSON, Kh.Sh.,referent

Rapid annealing of coiled steel with use of helium from foreign  
publications. Stal' 12 no.2:165-166 F '59. (MIRA 12:2)  
(United States---Annealing of metals)

S/028/60/000/008/007/010  
B013/B054

AUTHORS: Pridantsev, M. V., Levinzon, Kh.Sh., Matyushina, N. V.

TITLE: Thermally Treated Plate- and Wide-strip Carbon Steel

PERIODICAL: Standartizatsiya, 1960, No. 8, pp. 37 - 38

TEXT: The Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (Central Scientific Research Institute of Ferrous Metallurgy) and other scientific research organizations found during investigations that the use of thermal hardening is well convenient in metallurgical mass production. Preliminary calculations have shown that its economic profit will much exceed the costs of its introduction into mass production. The Komitet standartov, mer i izmeritel'nykh priborov (Bureau of Standards, Measures, and Measuring Instruments) approved a new standard ГОСТ 9458-60 (GOST 9458-60) "Thermally Treated Plate- and Wide-strip Carbon Steel. Technical Specifications". It comes into force on October 1, 1960. It comprises plates and wide strips from 6 to 40 mm thickness produced from one metal sort. The same mechanical properties are established for all thicknesses. The mechanical properties of

Card 1/2

Thermally Treated Plate- and Wide-strip Carbon Steel S/028/60/000/008/007/010  
B013/B054

thermally treated steels are mainly determined by 2 factors: the carbon content, and the plate thickness. According to GOST 9458-60, consumers are entitled to demand the supply of thermally hardened steel for welded constructions with a carbon content of no more than 0.20% and a sulfur content of no more than 0.050%. GOST 9458-60 has a limited running time of 2 years. Afterwards, it will be modified and defined more precisely on the basis of experience collected. ✓

Card 2/2

PRIDANTSEV, M.V., prof., doktor tekhn.nauk; LEVINZON, Kh.Sh.; LITVENENKO,  
D.A.; CHIRKIN, V.M.

Heat treatment of low-carbon rolled sheets in conveyer furnaces.  
Bul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch.i tekhn.inform.  
no.11:9-14 '62. (MIRA 15:11)  
(Steel, Structural--Heat treatment)

KAL'NER, D.A.; LEVINZON, Kh.Sh.

High-temperature embrittlement of bolts in steam turbine assemblies.  
Metalloved. i term. obr. met. no.7:25-27 J1 '64. (MIRA 17:11)

1. Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii  
imeni I.P. Bardina.

ACC NR: AP7000709

SOURCE CODE: UR/0133/66/000/012/1126/1131

AUTHOR: Gladshteyn, L. I.; Litvinenko, D. A.; Levinson, Kh. Sh.

ORG: none

TITLE: Strengthening of structural steel by heat treatment

SOURCE: Stal', no. 12, 1966, 1126-1131

TOPIC TAGS: low alloy steel, structural steel, ~~structural~~ steel property, ~~structural~~ steel heat treatment, *metal heat treatment*

ABSTRACT: The effect of rapid cooling on the strength of several low-alloy structural steels has been investigated. St.3KP, 19G, 14G2 and 15GS structural steel plates, 20 mm thick, were quenched from 900C in various media. It was found that rapid cooling (water quenching) increases the yield strength up to 75 kg/mm<sup>2</sup> and the tensile strength up to 85 kg/mm<sup>2</sup> at an elongation of 10% and a reduction of area of 45%. Strengthening of low-alloy structural steel by heat treatment depends to a great extent on carbon, manganese and chromium contents and to a lesser degree on silicon content. Low-alloy steels with carbon content not more than 0.16% have high ductility at a wide range of quenching rates. By increasing the carbon content and by cooling at a rate of 40—50 degrees/sec, the ductility and notch toughness of these steels may drop due to the formation of heterogeneous structure. In welding, steels strengthened by heat treatment (yield strength 60—75 kg/mm<sup>2</sup> lose 10—30% of this strength in the weld-adjacent zone.

Cord 1/2

UDC: 539.4.01:621.78/669.691.71

ACC NR: AP7000709

Small amounts of molybdenum and vanadium (0.2% of each) added to low-alloy steels do not affect significantly the strength of steels rapidly quenched from the austenitic state, but significantly strengthen steels which were cooled slowly or those which were annealed at high temperatures. This aids in preserving high strength of welds in steels strengthened by heat treatment. Orig. art. has: 7 figures and 3 tables.

SUB CODE: 11/3/SUBM DATE: none/ ORIG REF: 012/ OTH REF: 005/

Cord 2/2



FEDOROVA, N.N.; AGUF, I.A.; LEVINSON, L.M.; DASOYAN, M.A.

X-ray diffraction phase analysis of mixtures of  $PbO_2$  modifications. Zav. lab. 30 no.6:727-728 '64. (MIRA 17:8)

AGUF, I.A.; IEVINSON, L.M.

Theory of the corrosion deformation of battery grids. Zashch. met.  
1 no.5:590-593 9-0 '65. (MIRA 18:9)

1. Gosudarstvennyy nauchno-issledovatel'skiy akkumulyatornyy institut.

✓ The form of the boundary curve for the system phenol-water near the critical point. I. R. Krichevskii, N. R. Khazanova, and L. P. Levintsova. *Doklady Akad. Nauk S.S.S.R.* 94, 709-712 (1954). By means of a novel dilatometer with built-in stirrer the sp. vol. of the system phenol-water was investigated, in both the homogeneous and heterogeneous states, for various mixts. For the mixts. with 14.80 and 15.35 wt. % phenol there is a discontinuity in the slope of the graph of sp. vol. vs. temp., at about 58°, amounting to  $-4 \times 10^{-4}$  cc./degree g.; for 35.15 and 35.15%, 60°,  $+5 \times 10^{-4}$ ; 49.20%, (no temp. given),  $+4 \times 10^{-4}$ ; 21.20 and 31.90%, none discernible. The limits of accuracy are about  $\pm 1 \times 10^{-4}$ . Calculs. that assume the curve to be a parabola, and that use standard thermodynamic equations and other literature data, give a value of  $1.5 \times 10^{-4}$  for  $(\partial v, \partial T)_{c.p.} - (\partial v, \partial T)_{c.p.}$ , where the partial  $v$  sp. vol. is at const. pressure, const. concn. of solute, and at the crit. point. This agrees with the above exptl. figure within exptl. error. The conclusion is that this min. in the size of the discontinuity at or near the crit. point (and all other facts on the system phenol-water) fits the classical theory for crit. phenomena. This is contrary to that theory of Semenchenko (*C.A.* 49, 7352c), which assumes a max. in the value of the discontinuity for both sp. vol. and sp. heat at the crit. point. R. T. Myers

State Sci. Res. and Planning Inst.  
? Nitrogen Industry.

(9)

LEVINSON, M., inah.

Type PV ribbed slabs. Prom.stroi.i inah.soor. 4 no.1:31-33  
Ja-F '62. (MIRA 15:8)

(Roofing, Concrete)

<sup>309</sup>  
LEVINSON, V.M.  
AUTHOR: Bychovskii, A.L., Engineer, and Levinzon, V.M., Engineer.

TITLE: The operation of a high pressure boiler type PK-19 on natural gas. (Rabota kotla vysokogo davleniya tipa PK-19 na prirodnom gaze.)

PERIODICAL: "Energomashinostroenie", (Power Machinery Construction), 1957, No. 5, pp. 5 - 9, (U.S.S.R.)

ABSTRACT: Although it is proposed considerably to extend the use of natural gas as a fuel in Soviet power stations results of full-scale investigations of modern boiler sets on natural gas are not available. Results are given of tests carried out by the Podol'sk Works on a modern high pressure boiler in an attempt to fill the gap.

A boiler type PK-19 with an output of 120 t/h of steam at 109 atm. and 510 °C, after operating for a year on anthracite duff was converted to burning local natural gas of the Novodmitriyevskiy field near Krasnodar. This is a high quality gas related in composition to gases of the methane series. The calorific value is 9 500 kilocalories/m<sup>3</sup> (at n.t.p.) and density 0.81 kg/m<sup>3</sup> (at n.t.p.). The content of inert gas is less than 1% of CO<sub>2</sub> and 3-8 g/m<sup>3</sup> of water vapour. No trace of nitrogen or sulphur compounds was observed. The combustion products contain a large quantity of water vapour (up to 17% by volume of the flue gas).

309

The operation of a high pressure boiler type PK-19 on natural gas. (Cont.)

In reconstructing the boiler equipment to burn natural gas it was necessary to retain anthracite duff as a reserve fuel and therefore the gas burners were arranged in the round pulverised fuel burners. The construction is illustrated by diagrams.

The tests were carried out by the usual procedure. Thermocouple readings were corrected according to the temperature field measured over the entire sections. The temperatures at the end of the furnace were calculated from the temperatures beyond the superheater (with correction for cooling of bare thermocouples) and from the heat intake of the super-heater. Combustion was stable and reliable over the entire range of load from 55 - 140 tons per hour despite wide variations in the gas pressure. The rates of gas flow are given and the resistance of the burners to gas and air are given in the form of graphs. The main factor influencing incompleteness of chemical combustion is the quantity of excess air. Thus, when the excess air beyond the super-heater is 1.09 to 1.14, the CO content is between 0.40 and 0.57%, the  $\text{CH}_4$  up to 0.10%. When the excess air is reduced to 1.03 - 1.04 the CO content increases to 0.74 - 1.04% and the  $\text{CH}_4$  to 0.10 - 0.13%. Incomplete combustion of 2 - 3% occurs because of local and temporary oxygen shortages. The possibility of steaming at the rate of 140 tons per hour was verified. Combustion took

The operation of a high pressure boiler type PK-19 <sup>307</sup> on natural gas. (Cont.)

place normally and the quality of steam was satisfactory. The water level in the output cyclones and their steam output are plotted against the steaming rate of the boiler.

When burning gas the heat exchange in the boiler is more intensive than when burning anthracite dust. Thus the mean thermal loading on the radiation surface at nominal load is 130 000 kcal/m<sup>2</sup> hour on gas compared with 95 000 on coal; the fraction of direct heat output in the furnace was 62% as against 56% on dust. As a result, the temperature at the furnace outlet is between 900 and 1 080 °C, i.e. it is 200 - 300 °C lower than when burning coal. Data on heat transfer in the furnace is tabulated. Calculations on the furnace chamber by the new unified standards of the All-Union Thermotechnical Institute and the Central Boiler Turbine Institute show satisfactory agreement to the actual outlet temperatures, but calculation by the 1945 standards greatly increases these temperatures, on an average by 90 °C. Thus the dimensions of the furnace chamber for the combustion of gas should be considerably reduced for newly designed furnaces both in the area and weight of the radiation screen surfaces. Because of the increased heat absorption in the furnace, the temperature level over the entire gas duct was reduced

The operation of a high pressure boiler type PK-19 on<sup>309</sup>  
natural gas. (Cont.)

after conversion to gas burning. Comparative results for gas and coal are tabulated. Because of this, although the super-heater was operative at all loads when burning anthracite with gas there was no reserve of super-heat for control and the super-heater was usually inoperative. This is inconvenient in operation and special arrangements were made. The generally low temperature level and the clean condition of the convection surfaces reduce the heat loss with the exhaust flue gases to a low value. Graphs are given of the following characteristics as functions of the load: (1) exhaust gas temperature (85 - 115 °C); (2) hot air temperature (260 - 310 °C); (3) super-heated steam temperature (500 °C); (4) gas temperature beyond festoons (910 - 1 000 °C) and (5) boiler resistance on the gas side (50 - 120 mm water). Also: (1) excess air beyond the super-heaters, (2) loss due to incomplete combustion (3) loss with exhaust flue gas (4) overall efficiency (93 - 91%) and (5) specific power consumption on draught.

Particular interest attaches to the study of heat transfer on the convection heating surfaces under the conditions of slight contamination which can be used to evaluate the accuracy of the design procedure.

The convection surfaces were cleaned before converting to gas fuel and remained very clean for a considerable time so (economiser) and of the boiler as a whole



The operation of a high pressure boiler type PK-19 on <sup>309</sup>  
the natural gas. (Cont.)

are considerably lower than in the case of a contaminated boiler burning pulverised fuel. However, even though the tubes are clean, the resistances are greater than theoretical values.

It is concluded that a simple and successful design has been found for combined and separate combustion of solid and gaseous fuel which ensures stable combustion and also economic combustion of natural gas provided that the air supply is adequate. On conversion to gas the boiler which was designed for pulverised fuel gave lower flue gas temperatures over the entire gas duct because of the intensive heat emission in the furnace. When burning gas, the convective heating surfaces remain practically completely clean which ensures efficient heat transfer and low aerodynamic resistance.  
8 figures, 3 literature references (Russian).

18.7000

75974  
SOV/133-59-10-35/39

AUTHOR: Levinzon, Ye. S.

TITLE: High-Strength Stainless Steel

PERIODICAL: Stal', 1959, Nr 10, p 949

ABSTRACT: Review of an English-language article in the U.S.  
Journal "Iron Age," Vol 183, 1959, Nr 14, pp 73-77 on  
stainless steel produced by Allegheny Ludlum Steel Corp.  
There are 2 tables.

Card 1/1

18.3200

77450

SOV/133-60-1-11/30

AUTHOR: Levinson, Ye. S. (Reviewer)

TITLE: From Foreign Metallurgical Literature. The Effect of Vacuum Treatment on Properties of Low-Carbon Steel

PERIODICAL: Stal', 1960, Nr 1, pp 42-43 (USSR)

ABSTRACT: This is a review of an article in Stahl and Eisen, 1959, Vol 79, Nr 7, p 405 referring to the experiments conducted at the Gesch-Westfallenhueten Plant in Federal Republic of Germany. The vacuum treatment of low-carbon steel in the molds resulted in: (a) the decrease of contamination of steel by nonmetallic inclusions and the degree of liquation of sulfur and phosphorus, accompanied by lowering of their content; (b) the improvement of macrostructure, lowering of head trimming to the level of semikilled steel; (c) the increase of uniformity of mechanical properties of ingot's metal. The investigation of vacuum-treated low-carbon sheet metal ingots (7.5 ton weight) showed: (a) sharp improvement of macrostructure (similar to macrostructure of killed steel) with total

Card 1/2

From Foreign Metallurgical Literature. The  
Effect of Vacuum Treatment on Properties  
of Low-Carbon Steel

77450  
SOV/133-60-1-11/30

absence of shrinkage cavity and blowholes in the head portion of the ingot; (b) an absence of sulfur liquation (in samples taken at 0.5, 2, and 5% of ingot length, measuring from its head); (c) about 90% decrease in nonmetallic inclusions; (d) the increase of uniformity of mechanical properties over the whole ingot, accompanied by the decrease of hardness, growth of the depth of indentation, and values of elongation. There are 2 tables.

Card 2/2

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SOV/133-00-2-17/25

AUTHOR: Levinzon, <sup>Ye</sup> S. (Professor)

TITLE: From Foreign Literature on Metallurgy. Continuous Heat Treatment of Forgings in Automatically Controlled Straightway Furnace

PERIODICAL: Stal', 1960, Nr 2, p 159 (USSR)

ABSTRACT: This is a review of the article published in "Metal Treatment" (U.S.A.), 1959, Vol 26, Nr 164, pp 209-210.

Card 1/1

LEVINSON, Ye.S., referent

Use of nitrogen as an alloying element in open-hearth  
low-alloy steel [from foreign journals]. Stal' 20  
no.8:755-756 Ag '60. (MIRA 13:7)  
(Steel alloys--Metallurgy) (Nitrogen)

LEVINSON, Ye.S., referent

Effect of heat treatment on the properties of steel plate [from "The Welding Journal," no.4, 1958]. Stal' 20 no.9:853-854 S '60.

(MIRA 13:9)

(Plates, Iron and steel--Heat treatment)

LEVINSON, Ye.S.

Continuous conveyor disk-type heating furnace [from "Journal of  
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LEVINSON, Ye.S., referent

Boron containing stainless steel for nuclear reactors (from  
"Archiv für das Eisenhüttenwesen," no.2, 1961). Stal' 22  
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(Nuclear reactors—Materials)

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Development and improvement of industrial furnace design  
(from "Industrie Anzeiger," no.60, 1961). Stal' 22 no.7:648  
Jl '62. (MIRA 15:7)  
(Metallurgical furnaces--Design and construction)